

The Institute for Physical Research and Technology is a network of scientific research centers at Iowa State University. Through its Company Assistance efforts, IPRT helps Iowa companies solve technical problems, create new products, and increase productivity and quality. IPRT also helps educate tomorrow's scientists and engineers.

COMPANY ASSISTANCE

Through its world-class expertise and equipment, IPRT Company Assistance



helps Iowa manufacturers and entrepreneurs address specific R&D needs. Each year IPRT helps over 200 firms — from one-person startups to Fortune 500 corporations — solve scientific and engineering problems.

IPRT Company Assistance provides Iowa companies with short-term, no-cost technical assistance, materials analysis, nonroutine product testing, and evaluation and problem-solving research. It also provides matching funds for contract research and development projects involving industry, Iowa's state universities and the Ames Laboratory.

IPRT Company Assistance also has substantial resources for starting and growing new companies, from spin-offs based on IPRT-developed technology to entrepreneurial-based companies throughout the state.

SCIENTIFIC RESEARCH

IPRT's network of centers encourages scientists to form multidisciplinary teams to find innovative, comprehensive solutions for some of today's most complex scientific challenges.

Multidisciplinary research has been an IPRT hallmark since 1942, when the groundwork was laid for what became the U.S. Department of Energy's Ames Laboratory, IPRT's oldest and largest research center.

IPRT's areas of expertise include materials and chemical sciences, virtual reality, nondestructive evaluation, aircraft reliability, forensic sciences, biorenewable energy,



high-purity metals, microelectronics fabrication, catalytic processes, cluster and parallel computing, advanced semiconductors and rare earths and magnetics.

ACHIEVEMENTS

- IPRT has worked on over 1,500 company-assistance projects in the last five years with over 800 companies located in 91 of Iowa's 99 counties.
- Each year since 2002, Iowa companies have generated an average of \$17.5 million in sales, cost savings and investments, thanks to IPRT Company Assistance.
- IPRT researchers and resources have been involved in 21 prestigious R&D 100 Awards.
- IPRT research centers have participated in almost 700 research contracts in the last five years.
- IPRT has spun-off or directly assisted in development of more than 47 new business ventures.
- About 50 percent of ISU's active patents involve IPRT centers.

EDUCATION

Education is also a vital component of IPRT's mission. Over one-third of IPRT's staff is composed of undergraduate and graduate students, who learn by working on real-world projects and research. IPRT also supports the Science Bound program, which works to increase the number of underrepresented students pursuing careers in science and math. The Ames Laboratory annual Science Bowls encourage middle and high school students to become involved in science and math.

FUNDING

In the fiscal year 2003-2004, IPRT programs and projects received funding totaling \$51.1 million. Federal, industrial and other state research contracts composed 92 percent of IPRT's funding. ISU general funds contributed 4 percent, while state special appropriations provided the remaining 4 percent.

IOWA STATE UNIVERSITY

Institute for Physical Research and Technology

IPRT RESEARCH CENTERS

Ames Laboratory of the U.S. Department of Energy

Seeks solutions to energy-related problems through the exploration of chemical, physical, engineering, materials and mathematical sciences..

www.ameslab.gov

Catron Center for Solar Energy Research

Supports research on solar energy technologies that can address national energy needs.

Center for Building Energy Research

Focuses on efficient and renewable energy issues related to buildings, developing technologies to reduce energy consumption while maintaining performance and productivity.

www.me.iastate.edu/cber

Center for Catalysis

Dedicated to the development of useful, practical catalysts and sustainable green chemistry methods. Scientists investigate the application of catalysis and green chemistry methods to agricultural, industrial and environmental science.

www.iprt.iastate.edu/ccat

Center for Nondestructive Evaluation

Develops noninvasive methods and instruments for assessing the integrity of structures and materials.

www.cnde.iastate.edu

Center for Physical and Computational Mathematics

Develops strategies and algorithms for high-performance computing via cluster computers and local grid computing.

www.iprt.iastate.edu/cpcm

IPRT COMPANY ASSISTANCE

Leverages IPRT's world-class expertise and equipment to help Iowa manufacturers and entrepreneurs address specific research and development needs. IPRT Company Assistance provides technical assistance, contract research and development, start-up assistance and technology commercialization.

www.iprt.iastate.edu/assistance

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Center for Sustainable Environmental Technologies

Develops and demonstrates renewable energy and chemical technologies and environmental technologies related to fossil fuels.

www.csetweb.me.iastate.edu

FAA Airworthiness Assurance Center of Excellence

Identifies and provides solutions for national aircraft safety problems with a focus on inspection and maintenance issues. Major efforts include the Center for Aviation Systems Reliability and the Engine Titanium Consortium.

Materials Preparation Center

Prepares high-purity metals, alloys and compounds in single and polycrystalline forms for research and engineering uses.

www.csetweb.me.iastate.edu

Microelectronics Research Center

Develops advanced materials, devices and process technologies in the fields of semiconductors, photonics and solar energy conversion and provides educational laboratories in these technologies for both undergraduate and graduate students.

www.csetweb.me.iastate.edu

Midwest Forensics Resource Center

Partners with local, state and federal agencies to address regional forensics needs for training, research, casework, and education.

www.mfrc.ameslab.gov

Virtual Reality Applications Center

An interdisciplinary research center focusing on the rapidly expanding interface between humans and computers.

www.vrac.iastate.edu

SCIENCE BOUND

Works to increase the number of underrepresented students who pursue science and technology careers.

www.iprt.iastate.edu/sb

SCIENCE BOWL

Encourages high school and middle school students to become involved in math and science activities and improve their awareness of career options in science and technology.

www.ameslab.gov/community/ScienceBowl/Index.htm